

Submitted on **February 08, 2005**

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1. HEALY Cruise:

HLY-05-02/Gradinger/27Jun05-26Jul05

2. Cruise dates:

(Determined by the Cruise Number)

Start: June 27, 2005 **End:** July 26, 2005

3. Your Name:

Rolf Gradinger

4. Affiliation:

University of Alaska Fairbanks

5. Funding Agency:

NOAA Ocean Exploration Office

6. Grant Number:

not available at this time

7. Full Address:

School of Fisheries and Ocean Sciences

8. Phone Number:

907 474 7407

9. Email Address:

rgradinger@ims.uaf.edu

10. Fax Number:

907 474 7204

11 Date and Time to Start Loading:

in Barrow ideally on July 26, 2005

12. Estimated Time Needed:

1 day

13. Special Requirements for Loading or in-port logistics:

Yes

13b. If yes, Please list point of contact for in port logistics:

Russ Hopcroft (hopcroft@ims.uaf.edu)

14. Estimated cargo size and weight to be loaded in Seattle:

24000 pounds

15. Estimated cargo to be loaded during underway port calls:

8180 pounds

15b. Cargo List:

Four different groups with different PIs will participate in the expedition plus 2 media groups. The PIs will individually submit their cargo manifests to the Healy tracking system.

Additional File(s) Uploaded for Cargo List: 3

[Filename]	[File Size]
GEX Size Specifications 1.doc	23552 bytes
HLY05_02_hazmatwhitledge.doc	22016 bytes
HLY0502_cargo.xls	9216 bytes

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16. Give a brief description of the area of operations and type of work to be done and science objective:

The major scientific objective is to improve the inventory of life in the Canada Basin.

Sampling will be conducted along the slope and within the deep Canada Basin and includes studies on all three major realms (sea ice, water column and sea floor) using traditional samplers (CTD, water sampler, plankton nets, trawl, box core, ice coring) and optical techniques (ROV, divers, camera systems).

At each station, the ROV will be in the water for about 12 to 24 hours together with about 12 hours of other sampling activities. Ice sampling and diving activities should be conducted in parallel to the already mentioned activities.

This basic schedule will change from station to station, depending on whether ice conditions allow the use of e.g. trawls and the moored camera system.

The cruise will start and end in Barrow. After leaving Barrow, we will have a first test station (st. 1 on the map) and then conduct a transect reaching from the continental slope into the deep Canada basin. The stations will be located according to water depth - if ice conditions are suitable. From the deepest station we will head northwest covering another deep-sea/slope gradient. Stations 10 to 12 are located in the so-called pockmark area with specific bathymetric features. On the way back to Barrow three more stations will be conducted along the slope and in Barrow Canyon (station 15). The deep sea stations have the highest priority for our expedition.

17. Total Number of People in Your Party:

43

18. If your cruise involves any of the following, please check below:
(Items marked * Require advance approval.)

Items	Check
Multiple PI or Institution Cruise:	Yes
24 hour science operations (Night Work?):	Yes
Personnel Deployed on Ice:	Yes
Hazardous Materials:	Yes
Radioactive Materials:	No *
Gasoline to run science equipment:	Yes
Explosive Devices:	No
Flammable Gases:	No
Portable air compressors:	No

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19. Diving Operations: Yes

Number of Dives: 30

Purpose: Collection and video-recording of life at the ice-water interface, collection of animals in the uppermost 10m of the water column during the stations.

Will members of the science party be diving: Yes

Are you requesting USCG diver support: Yes

20. Small Boat Operations: Yes

Number of deployments expected: 30

Purpose: We request small boat operations as platform for dives. This is an alternative to the use of ice floes at platforms. Small boat operation can also be used as alternative to conduct work on ice floes, if Healy cannot stay with the ice party for longer time periods because of other operations.

Range in miles from the ship: 3

Payload size and weight: 300 lb

Gasoline for Equipment: needed (generator for ice work)

21. Helicopter Operations: Yes

Passenger Transports: Yes

Cargo Transports: Yes

Payload size and weight: 500 lb

Maximum hours/flight: 1.5

Average hours/day: occasional

Number of flights: 45

Total flight hours: 50

Installation of sensors on Helicopter: No

Describe flight operations: About 40 flights are needed for boarding and leaving the ship in Barrow.. Two additional flights are requested to bring media people (3-5 people, 200 lb cargo) onboard the Healy at station 15 about five days prior to the end of the cruise. Additional requests might come from participating media (not finally decided) and might occur if scientific

material needs
to be transported to the ship or back to the home labs.

Range in miles from the ship: **50-100**
Max distance from the ship: **100**

22. Deployment or Recovery of Moorings: **Yes**

Provide the Lat/Long/Depth of each mooring and a description: **Short-term deployments (24 hours) of a video camera are planned to the deep sea floor, if ice conditions allow for safe recovery. If ice conditions do not allow for deployment at the sea floor the camera will be deployed from the sea ice and stay just below the ice floe for about 24 hours.**

Number of Moorings to deploy: **15 (max.)**
Number of Moorings to recover: **15 (max.)**
Min Depth: **750**
Max Depth: **3800**

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23. Operational plan: Cruise Tracks and Station Locations. Please provide as complete a description as possible. Include with this plan, or separately, a complete list of stations with ID, Latitude, Longitude, depth and other information such as type of sampling/operations as appropriate. Use the text box below or upload separate documents as needed.

23a. Upload a cruise track file (jpeg, pdf, gif, etc) here (required):

Cruise Track Uploaded: arcticmap.jpg

23b. Upload additional files as needed:

Additional File(s) Uploaded for Operational Plan: 1

Filename	File Size
healy05_short2.doc	1320448 bytes

Operational Plan Description

The cruise will start and end in Barrow. After one test station (station 1), 14 stations will be sampled along the shelf-deep sea gradients in the Canada basin (see uploaded station map). Stations are defined by water depth and not location, so we will decide on final latitude and longitude positions based on the ice conditions during the cruise.

Will the vessel be operating within 200 miles of a foreign country? **No**

24. Will you be contacting Native communities to inform them of your intended icebreaker research activities? **Yes**

If yes, please list the native communities and contacts:

Barrow, Alaska - contact currently established through the Barrow Arctic Science Consortium (BASC) - contacted Glenn Sheehan.

25. Will Marine Mammal Protection Act, NEPA or Endangered Species Act consultation or permitting be required? **No**

26a. Cruise Plan and Description of Operations:

Provide as much detail as possible about the type of operations and sampling to be conducted, daily schedule and hours of operation, type of equipment to be used and any other information that will help us

prepare for this cruise. Use additional pages or send corrected drafts as necessary. If this is a multi-investigator cruise, please include a list of Co-PI's who will be submitting operational science plans:

See file uploaded under 23b. This plan includes the activities of all participating science groups. Additional requests might come forward from the media participation. The following PIs are responsible for the various sampling activities

Sea ice sampling: Rolf Gradinger
Pelagic primary production and oceanography: Terry Whitledge
Pelagic fauna: Russ Hopcroft (also main contact for ROV operations)
Benthic fauna: Bodil Bluhm

26b. Upload additional files as needed:

Additional File(s) Uploaded for Description of Operation: 0

[Filename] [File Size]

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27. Current Crew List

	Name	Institution	Position	Phone/Email	Sex	Dates	Foreign Nat.	Nationality
1	Rolf Gradinger	University of Alaska Fairbanks	Scientist	907 474 7407 rgradinger@ims.uaf.edu	M		No	German
2	Mette Nielson	University of Alaska Fairbanks	Graduat;e Student	907 474 5939 nielson@sfos.uaf.edu	F		No	USA
3	Shawn Harper	University of Alaska Fairbanks	Graduat;e Student	907 474 5243 fssth@uaf.edu	M		No	USA
4	TBA	Polar Research Institute	Scientist	TBD TBD	TBD		No	China
5	Terry Whitledge	University of Alaska Fairbanks	Scientist	907 474 7229 terry@ims.uaf.edu	TBD		No	USA
6	Mikhail Flint	Shirshov Institute in Moscow	Scientist	TBD TBD	TBD		No	Russian
7	Dean Stockwell	University of Alaska Fairbanks	Scientist	907 474 5556 dean@ims.uaf.edu	TBD		No	USA
8	TBA	TBD	TBD	TBD TBD	TBD		No	TBD
9	Katrin Iken	University of Alaska Fairbanks	Scientist	907 474 5192 iken@ims.uaf.edu	F		No	German
10	Bodil Bluhm	University of Alaska Fairbanks	Scientist	907 474 6332 bluhm@ims.uaf.edu	F		No	German
11	TBA	University of Alaska Fairbanks	Technician/Grad student	TBA TBA	TBA		No	USA
12	Ian MacDonald	Texas A&M Univ. Corpus Christi	Scientist	361 825 2234 imacdonald@falcon.tamucc.edu	M		No	USA
13	Richard Arena	Texas A&M Univ. Corpus Christi	Undergraduate	TBA TBA	M		No	USA
14	TBA	Zoological Inst. St. Petersburg	Scientist	TBA TBA	TBA		No	Russian
15	Russ Hopcroft	University of Alaska Fairbanks	Scientist	907-474-7842 hopcroft@ims.uaf.edu	M		No	Canadian
16	Marsh Youngbluth	Harbor Branch Oceanographic	Scientist	772-465-2400 x319 youngbluth@hboi.edu	M		No	US
17	Kevin Raskoff	Univ. Cal. Monterey Bay	Scientist	831-582-4662 kevin_raskoff@csumb.edu	M		No	US
18	Jenny Purcell	Western Washingtoin Univ	Scientist	360-650-7400 purcelj@cc.wwu.edu	F		No	US
19	Ksenia Kosobokova	PP Shirshov Institute	Scientist	TBD xkosobokova@ocean.ru	F		No	Russian
20	TBA ?	TBD	Student/diver	TBD TBD			No	TBD
21	TBA	Galathea Film Team	Media	TBD TBD	TBD		No	French

22	TBA	Galathea Film Team	Media	TBD TBD	TBD	No	French
23	TBA	Galathea Film Team	Media	TBD TBD	TBD	No	French
24	TBA	TBD	Media	TBD TBD	TBD	No	TBD
25	TBA	TBD	Media	TBD TBD	TBD	No	TBD
26	TBA	TBD	Techer at sea	TBD TBD	TBD	No	USA
27	TBA	TBD	Techer at sea	TBD TBD	TBD	No	USA
28	Jeremy Potter	NOAA-OE	NOAA Coordinator	301-713-9444 x136 jeremy.potter@noaa.gov	M	No	USA
29	TBD	NOAA-OE	OE Web Coordinator	301-713-9444 x136 TBD	TBD	No	USA
30	TBD	NOAA-OE	OE Data Manager	301-713-9444 x136 TBD	TBD	No	USA
31	TBA	Deep-Sea Systems	ROV Pilot/Technican	508-540-6732 dssiinc@aol.com	M	No	USA
32	TBA	Deep-Sea Systems	ROV Pilot/Technican	508-540-6732 dssiinc@aol.com	M	No	USA
33	Mike Nicholson	Deep-Sea Systems	ROV Pilot/Technican	508-540-6732 dssiinc@aol.com	M	No	USA
34	TBA	TBD	Media	TBD TBD	TBD	No	USA
35	TBA	TBD	Media	TBD TBD	TBD	No	USA
36	TBA	TBD	Media	TBD TBD	TBD	No	USA
37	TBA	TBD	Media	TBD TBD	TBD	No	USA
38	TBA	TBD	Media	TBD TBD	TBD	No	USA
39	TBA	TBD	Scientist/bathymetric data	TBD TBD	TBD	No	TBD
40	TBA	TBD	Scientist/bathymetric data	TBD TBD	TBD	No	TBD
41	TBA	TBD	Scientist/Marine mammal	TBD TBD	TBD	No	TBD
42	TBA	TBD	Scientist/Marine mammal	TBD TBD	TBD	No	TBD
43	TBA	TBD	Scientist/Marine mammal	TBD TBD	TBD	No	TBD

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28. Please check (X) by equipment needed. If you have questions, or need assistance, please call or email the Marine Science Technician Chief or the Marine Science Officer at 206-217-6300

Cables	Instrument(s)	Instrument Wts	Max Depth	A Frame
<input checked="" type="checkbox"/> .322"conducting cable (12k meters)	CTD	200	3800	<input type="checkbox"/> AFT <input checked="" type="checkbox"/> STBD
<input checked="" type="checkbox"/> 3/8" steel cable (10k meters)	Plankton net, box corer	100, 700 lb	3800	<input type="checkbox"/> AFT <input type="checkbox"/> STBD
<input checked="" type="checkbox"/> .680 coax conducting cable (12k meters)	Multinet	1000	3800	<input checked="" type="checkbox"/> AFT <input type="checkbox"/> STBD
<input checked="" type="checkbox"/> 9/16" steel cable (14k meters)	benthic trawl	500 lb	3800	<input checked="" type="checkbox"/> AFT <input type="checkbox"/> STBD
<input type="checkbox"/> 1/4" steel cable (14k meters)				<input type="checkbox"/> AFT <input type="checkbox"/> STBD
<input type="checkbox"/> Spare .322 conducting cable (12k meters on spare drum)				<input type="checkbox"/> AFT <input type="checkbox"/> STBD
<input type="checkbox"/> SeaMac portable winch-Instrument				<input type="checkbox"/> AFT <input type="checkbox"/> STBD

Will you be bringing your own winch and wire? **Yes**

Describe use, size, and weight & power requirements below:

ROV winch: 480 VAC 60Hz, 3 phase power at 45 amps peak; 25HP AC motor to start and operate

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29. Crane requirements:

- ☒ Port Side Fantail Crane (Safe Working Load: 5 tons)
- ☒ Starboard Side Fantail Crane (Safe Working Load: 15 tons)
- ☒ 04 Deck Cranes (Safe Working Load: 15 tons)
- ☐ Forecastle Crane (Safe Working Load: 3 tons)

Anticipated use

ROV deployment, movement of corer
ROV deployment, movement of corer
deployment of ice team and divers

Describe other lifting requirements here: (cranes have limited reach please consult the crane descriptions)
Unloading of all ROV gear in Dutch Harbor

30. Deckspace Requirements:

	<input type="checkbox"/> Vans	<input checked="" type="checkbox"/> Incubators	<input checked="" type="checkbox"/> Storage
Type/Size		2 deck incubators: 4 by 4 feet	equipment (trawl, corer, cargo pallets)
Location		No response	No response
Water Req		No response	
Seawater Req		No response	
Power Req		No response	

Describe all other Deckspace requirements here:
Ambient seawater is needed for rinsing nets and benthic fauna on working deck, and at a benthic mud shunt for sieving operations

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31. Science Equipment and Lab Configuration:

CTD

[Click here for Healy Station keeping limitations](#)

☒ SeaBird 911 + CTD/Rosette

Use: **Dedicated**

Depth - Min(m): **750** Max(m): **3850**

Approximate Number of casts planned: **30**

☒ Redundant Temperature Sensors

☒ Redundant Conductivity Sensors

☒ O2 Sensor

☒ Wet Labs Transmissometer

☒ Chelsea Fluorometer

☒ Altimeter

☒ 12 Liter external spring Niskin bottles

☐ 30 Liter external spring Niskin bottles

Expendable Oceanographic Probes (User supplied)

☐ Hull mounted launcher

☐ Hand launcher

Number of Launches: **No response**

What probes will you be launching? (checked below)

☐ XCTD ☐ XBT ☐ Other:

Science Seawater

Science Seawater

☒ AutoSal Salinometer

☒ Seabird 21 Thermosalinograph

Use: **Occasional**

Use: **Occasional**

☒ Turner 10AU Fluorometer

Use: **Occasional**

Incubator Seawater (HEALY does not have Ambient temp seawater at flow rates >5gpm)

[x] Incubator ambient temperature seawater Flow rate: **5gpm**

Please indicate other seawater requirements:

Science seawater needed in scientific labs

Acoustics

[x] Ocean Data BATHY2000 Echosounders

Use: **Occasional**

[] RDI 150 kHz BB ADCP (Science Party supplies operator)

Use:

[] Knudsen 320B/R Echosounder

Use:

[x] Benthos pingers

Use: **Occasional**

[x] SEABEAM 2112 Bottom Mapping Sonar (Science Party supplies operator)

Use: **Occasional**

[] RDI 75 kHz BB ADCP (Science Party supplies operator)

Use:

[] EPC 9802 20" Line Scan Recorder

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31. Science Equipment and Lab Configuration: (Cont.)

Lab Equipment

[x] DI Water (18 Mega Ohm) liters/day required: **30**

[x] Fume Hood (3 available)

Use: **Dedicated**

[x] Walk in Freezer

Use: **Occasional**

[x] Walk in Refrigerator

Use: **Occasional**

[x] -80 °C freezers (2 @ 12 cu ft each)

Use: **Occasional**

[x] Climate Control Chambers (2)

Use: **Dedicated**

[x] Clean/UPS Power (120v, 60Hz, Type 1)

Meteorological

[x] RM Young Wind Sensors (Mech/Ultrasonic)

[x] Terascan Weather Satellite System

[x] RM Young Air Sensors(Temp, Baro, RH etc)

[x] 12 kHz pinger (Benthos/Datasonics)

Communications

[x] Email

Bytes/Day

To Ship: **No response** From Ship: **No response**

[] Data/FTP

Bytes/Day

To Ship: From Ship:

[x] High latitude satellite connectivity (>73 N)

Bytes/Day from the ship: **1 hour/day**

Explain other communications concerns and requirements:

[x] Iridium Phone

Mins per day: **30**

[x] INMARSAT Phone

Mins per day: **30**

Two groups (teacher at sea, Ocean Exploration team) will submit daily logs back to land. Hours per day still need to be discussed with NOAA funding agency.

Coring

[] Jumbo Piston Coring

Use:

[] Gravity Core

Use:

Number of cores using the 4k core head:
Number of cores using the 5k core head:

Number of cores:

Minimum depth:
Maximum depth:

Minimum depth:
Maximum depth: